Andrew Seohwan Yu

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Education

Case Western Reserve University — **Cleveland, OH**
- PhD in Computer Science — 2021-Present

Cleveland State University — **Cleveland, OH**
- Master of Computer and Information Sciences — 2014-2017
- Thesis: NBA Basketball Analytics with ML
- *Magna Cum Laude*, GPA 3.61/4.00

Kent State University — **Kent, OH**
- Bachelor of Science, Integrated Life Sciences — 2009-2011
- *Magna Cum Laude*, GPA 3.74/4.00

Research

Cleveland Clinic, Lerner Research Institute — **Cleveland, OH**
- Advisor: Xiaojuan Li — 2021-Present
- Unsupervised segmentation of musculoskeletal lesions in MRIs using anomaly detection
- Quantitative medical imaging and radiomics to find biomarkers for osteoarthritis

Case Western Reserve University — **Cleveland, OH**
- Advisor: Vipin Chaudhary — 2021-Present
- Comparison and evaluation of generative models (diffusion models, GANs, VAEs)
- Fine-tuning foundational generative models for small-domain tasks

Cleveland State University — **Cleveland, OH**
- Advisor: Sunnie Chung — 2016-17
- NBA basketball play prediction using real-time player and ball position data and machine learning

Publications

Unsupervised Segmentation of Knee Bone Marrow Edema-like Lesions Using Conditional Generative Models. Andrew Seohwan Yu, Mingrui Yang, William Holden, Ahmet Hakan Ok, Sameed Khan, Jeehun Kim, Carl Winalski, Naveen Subhas, Vipin Chaudhary, and Xiaojuan Li. Bioengineering 2024, 11, 526.

Inpainting MRI for unsupervised knee bone marrow edema-like lesion segmentation using conditional diffusion models, Andrew Seohwan Yu, Richard Lartey, William Holden, Ahmet Hakan Ok, Jeehun Kim, Carl Winalski, Naveen Subhas, Vipin Chaudhary, and Xiaojuan Li, presented at the Society of Photo-Optical Instrumentation Engineers (SPIE) Imaging Informatics for Healthcare, Research, and Applications, San Diego, February 20, 2024

Novel Unsupervised Segmentation of Bone Marrow Edema-Like Lesions using Bayesian Conditional Generative Adversarial Networks, Andrew Seohwan Yu, Sibaji Gaj, William Holden, Richard Lartey, Jeehun Kim, Carl Winalski, Naveen Subhas, and Xiaojuan Li, Proceedings of the International Society for Magnetic Resonance in Medicine, (ISMRM) Scientific Meeting and Exhibition, ISSN 1545-4428 (Online), May 19, 2023

Empirical Study: Temporal and Spatial Feature Processing Methods for Prediction of NBA Basketball Plays for Sports Analytics, Sun Sunnie Chung and Andrew Yu. Accepted to International Journal of Networked and Distributed Computing (IJNDC), Vol 7: Issue 3, ISSN Print: 2211-7938, ISSN Online: 2211-7946, July 2019

Teaching

Pennsylvania State University — **Erie, PA**

- Full-time instuctor — 2017-2021
  - Artificial Intelligence (Python) — Spring 2021
  - Technical Game Development (Unreal Engine 4) — Spring 2021
  - Game Development Project (Unreal Engine 4) — Fall 2020
  - Applications Programming (Android, Kotlin) — Spring 2020
  - Operating Systems and Programming (C, UNIX) — Fall 2017-Spring 2019
  - Introduction to Programming Techniques (C++) — Fall 2017-Summer 2021

Cleveland State University — **Cleveland, OH**

- Graduate Teaching Assistant — 2016-17
  - Introduction to Engineering Design (C, Arduino) — Spring 2017
  - Introduction to Programming (Java) — Fall 2016